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## The Body Experience Questionnaire for adults with mild intellectual disability or borderline intellectual functioning (BEQ-mb): Development and initial evaluation

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### ABSTRACT

**Background:** Body experience is an important facet of psychosocial functioning and health. However, to date no test exists to measure body experience in adults with mild intellectual disability and borderline intellectual functioning (MID-BIF). We therefore adapted the Body Experience Questionnaire (BEQ) to this group, resulting in the BEQ-mb, and evaluated its usability, comprehensibility, and reliability.

**Method:** The BEQ-mb was developed in five stages: concept development, focus group, verbal reports, pilot testing, and evaluation.

**Results:** The BEQ-mb is applicable in, and comprehensible by, adults with MID-BIF. Internal consistency is good for the total scale and the body awareness and body satisfaction subscales, but low for the body attitude subscale. Test–retest reliability is excellent for the total scale and the subscales.

**Conclusion:** The BEQ-mb unlocks new opportunities for clinical examination and research on body experience. Future research is needed to investigate its structural validity.

### KEYWORDS

Body experience; body awareness; body satisfaction; body attitude; self-report questionnaire; mild intellectual disability and borderline intellectual functioning

Body experience is an important facet of psychosocial functioning and health (Fonagy & Target, 2007; Lipowski, 1977; Nayir et al., 2016). How one experiences one's body affects one's overall experience of being in the world. Moreover, a broad range of psychiatric disorders is accompanied by a disturbed body experience (Fuchs & Schlimme, 2009; Lipowski, 1977). Improving body experience is therefore a main objective in body- and movement-oriented treatments, such as psychomotor therapy (PMT) (Röhricht, 2009). However, appropriate instruments for measuring body experience are lacking, especially in individuals with limited cognitive abilities and intellectual disability (ID).

Body experience encompasses different dimensions (Cash & Pruzinsky, 2002; Joraschky et al., 2009), which have been classified as body awareness, body satisfaction, and body attitude (Röhricht et al., 2005; Scheffers et al., 2017). Body awareness pertains to the conscious perception of bodily states, processes, and actions based on proprioceptive and interoceptive signals (Mehling et al., 2009). Body satisfaction refers to the degree of satisfaction with the appearance and

functioning of one's body (Alleva et al., 2014), while body attitude relates to cognitive, affective, and behavioural aspects of embodiment (Pöhlmann et al., 2014; Scheffers, 2018).

Research on body experience in individuals with ID has been scarce. Most studies published to date focus on body satisfaction in relation to body weight and shape (Eden & Randle-Phillips, 2017; Napolitano et al., 2010). Only two studies have been identified to have examined body awareness in individuals with ID, both in relation to aggression (Bellemans et al., 2018; De Loeff et al., 2019). Bellemans et al. (2018) interviewed psychomotor therapists working with individuals with ID, who indicated that enhancing body awareness is a key vehicle in PMT to reduce anger and aggression in this group, while De Loeff et al. (2019) measured several physiological variables, such as heart rate and skin conductance, before the onset of aggressive behavior, without directly assessing body awareness itself.

Only one study (Emck et al., 2012) covered all three dimensions of body experience in individuals with ID and evaluated the relation between psychopathology

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and body experience in this group. This study showed that children with ID and externalising problems have a disturbed body experience, especially regarding body awareness and body satisfaction.

Although there is a paucity of research on body experience in individuals with ID, body experience is important in individuals with ID for three reasons. First of all, as already mentioned, body experience is often disturbed in individuals with psychiatric disorders, including trauma-related disorders (Sack et al., 2010; Scheffers et al., 2017a), anxiety disorders (Aderka et al., 2014), depressive disorders (Scheffers et al., 2019), somatoform disorders (Scheffers et al., 2018), eating disorders (Gaete & Fuchs, 2016), psychotic disorders (Sakson-Obada et al., 2018), and autism spectrum disorders (Schauder et al., 2015). Since psychiatric disorders are significantly more prevalent in individuals with ID than in individuals with (higher than) average IQ (Emerson, 2003; Whitaker & Read, 2006), the same presumably holds for negative body experiences.

Second, individuals with ID may show different manifestations of psychiatric disorders than individuals with (higher than) average IQ (Fletcher et al., 2016), including more body related symptoms such as aggression or self-harm. In general, a more bodily manifestation of psychiatric disorders appears likely in individuals that are limited in verbal communication and expression.

Third, body awareness appears to play a key role in emotion regulation (Craig, 2015; Price & Hooven, 2018). Since individuals with ID are known to have problems with emotion regulation, reflected in labelling emotions and dealing with anger and aggression (Bellemans et al., 2018; McClure et al., 2009), body awareness might be an important focal point for therapeutic interventions, such as PMT, in these individuals. Through actively participating in physical exercises in PMT, they may learn to become aware of body signals, to correctly label their corresponding emotional states, and to adequately regulate those states (Bellemans et al., 2018).

However, due to the absence of suitable assessment instruments, few empirical data are available to support or reject these hypotheses and impressions. Moreover, the assessment instruments used in studies on body experience in individuals with ID have neither been adapted to individuals with ID, nor tested or validated for this group. Although the figure rating scales that have been used to measure the subjective experience of one's perception of body shape (Collins, 1991; Stunkard et al., 1983) might be applicable to individuals with ID (Eden & Randle-Phillips, 2017), they do not focus on the appearance and functioning of the body, i.e., the key elements of body satisfaction (Alleva et al., 2014). Emck et al. (2012) measured body experience in children with

ID with a psychomotor observation tool, the PsyMot for children (Emck & Bosscher, 2010), and a pilot version of a Dutch self-report questionnaire, the Body Experience Questionnaire for Children (BEQC) (Emck, 2015). However, many participants in this study proved to have problems with reading and reasoning while completing the BEQC. In sum, although some assessment instruments have been used in individuals with ID, suitable self-report questionnaires measuring all aspects of body experience remain to be developed for this group.

For individuals with average IQ (and higher), several self-report questionnaires measuring the three domains of body experience are available. Examples include the Multidimensional Assessment of Interoceptive Awareness 2 (MAIA-2; Mehling et al., 2018) for body awareness; the Body Cathexis Scale (BCS; Balogun, 1986; Secord & Jourard, 1953) for body satisfaction, and the Dresden Body Image Questionnaire (DBIQ; Pöhlmann et al., 2014; Scheffers, Van Duijn, et al., 2017) for body attitude. However, these questionnaires have not yet been tested in or adapted to individuals with ID.

Self-report questionnaires for individuals with average IQ (and higher) need to be adapted to individuals with ID, especially those with mild intellectual disability or borderline intellectual functioning (MID-BIF, IQ 50-85<sup>1</sup>) (Hartley & Maclean, 2006; Rittmannsberger et al., 2020; Vlot-Van Anrooij et al., 2018), because they have difficulties with reading and reflective reasoning (Finlay & Lyons, 2001). Once this has been accomplished, and the reliability of the resulting questionnaires has been established, they may be suitable to study body experience and its relation to psychopathology and emotion regulation in individuals with ID. Such research may shed light on the pathology specific disturbances of body experience in this group, as well as the kinds of interventions that may alleviate those disturbances. To this end, we developed a Body Experience Questionnaire for adults with MID-BIF (BEQ-mb) in the Dutch language, and examined its usability, comprehensibility, internal consistency, and reliability.

## Methods

The study protocol was approved by the local ethics committee of the Faculty of Behavioural and Movement Sciences of the Vrije Universiteit Amsterdam (VCWE-2020-125). The study consisted of five stages: (1) concept development, (2) focus group with experts, (3) verbal reports (Conrad et al., 2000), (4) pilot testing, and (5) evaluation.

### Stage 1 concept development

The original BEQC (Emck, 2015) was taken as starting point for the concept development of the BEQ-mb.

The BEQC consists of 24 items that were construed to assess the three dimensions of body experience – body awareness, body satisfaction, and body attitude. At first, potentially suitable items in the BEQC for adults with MID-BIF were identified. Next, six other self-report questionnaires for adults with average IQ (and higher) covering the three dimensions of body experience were reviewed to identify additional suitable items for adults with MID-BIF. Items were considered suitable if (1) they measured body awareness, body satisfaction, or body attitude following our definitions of these dimensions (see Introduction) and (2) deemed to match the inner experience of individuals with MID-BIF.

Additional items on body awareness were taken from the MAIA-2, the BSQ, and the Somatic Awareness Questionnaire (SAQ; Gijsbers van Wijk & Kolk, 1996), on body satisfaction from the BCS, and on body attitude from the DBIQ and the Body Investment Scale (BIS; Orbach & Mikulincer, 1998).

Subsequently, all items were clustered in themes. Furthermore, recommendations for developing questionnaires and formulating items specifically for individuals with MID-BIF were followed: simple language, items in first-person perspective, no double-barrelled items, no negative wording, no items requiring quantitative judgements, direct comparisons and generalisations, limited number (three to five) of response alternatives, and, if feasible, pictorial representatives for response alternatives (Finlay & Lyons, 2001; Hartley & Maclean, 2006).

### Stage 2 focus group

A focus group (Krueger & Casey, 2009) of six psychomotor therapists working with individuals with MID-BIF was formed to evaluate and improve the selected test items. The focus group evaluated these items in terms of usability, language, terminology, instructions, response alternatives, and face validity. The discussions in, and recommendations from, the focus group were recorded and transcribed verbatim. Furthermore, two assistants were taking notes during the focus group meetings. Three authors (MJS, MS, CE) analysed the transcripts and notes and adapted the test based on the focus group's recommendations.

### Stage 3 verbal reports

Following the adaptation of the initial test concept, five verbal reports with adults with MID-BIF were held to evaluate how participants understand, mentally process, and respond to the questionnaire (Conrad et al., 2000).

The following aspects were addressed: usability, language, terminology, instructions, and response alternatives. The interviews were recorded and transcribed verbatim. Three authors (MJS, MS, CE) analysed the transcripts, and made further test adaptations based on the information garnered. The number of interviews held (five) was based on content saturation (Guest et al., 2006).

### Stage 4 pilot testing

After two adaptation rounds of the initial concept, a pilot study was conducted to examine the usability, comprehensibility, and reliability of the BEQ-mb at this stage of development.

### Participants

The pilot study was carried out in 11 care facilities for individuals with MID-BIF in the Netherlands. The participants were recruited through non-probability sampling. The inclusion criteria for potential participants were: (1) IQ between 50 and 85, (2) aged 18 years or older, (3) sufficient command of the Dutch language, and (4) ability to read at the lowest level (A1) (Council of Europe, 2020). The exclusion criteria were: (1) severe impairments in reality testing and (2) other symptomatology, such as visual or motor disabilities, precluding participants from filling out a questionnaire by themselves. The practitioner in charge determined whether a potential participant was eligible for inclusion in the pilot study.

In total, 85 adults with MID-BIF, 43 men (50.6%) and 42 women (49.2%), completed the BEQ-mb. Their mean age was 34.8 years (SD = 15.2; range 18–75). Fifty-seven participants had MID (67.1%) and 28 participants had BIF (32.9%).

### Procedure

Data were collected between December 2019 and April 2020. The managers of the contacted care facilities gave permission to collect data at their organisation. Bachelor students of the Windesheim University of Applied Sciences and the Vrije Universiteit Amsterdam assisted in data collection. All research assistants were trained to administer the BEQ-mb by the first author (MJS).

The research assistants invited potential participants for a one-on-one meeting to inform them about the aim of the study, the voluntary nature of participation, and the anonymous processing of data. They also received an information letter, which they read together with the research assistant to ensure that they fully understood what participation entailed. If interested in participation, the potential participants were asked to sign

an informed consent form. Data from non-responders were not collected.

Participants completed the BEQ-mb individually in a quiet room, where the research assistant was present as well to answer any questions and to record the time needed to complete the BEQ-mb. After completion, the research assistant asked two additional pre-structured evaluative questions regarding length and comprehensibility of the BEQ-mb.

To evaluate test-retest reliability, 65 participants completed the BEQ-mb twice within a 2-week interval. Twenty participants were unable to complete the BEQ-mb for a second time due to a variety of reasons.

### Outcome measures

*Usability, comprehensibility, and reliability* of the BEQ-mb were evaluated. *Usability* was assessed in terms of the time (in minutes) required to complete the BEQ-mb, the number of missing scores, and the length of the BEQ-mb. Less than 3% missing scores per item was considered acceptable (De Vet et al., 2011). The length of the questionnaire was examined by asking the participant if the questionnaire was of good length or too long or too short. The *comprehensibility* of the items was examined by asking the participants which items were difficult or incomprehensible for them. Their answers were noted per item and analysed by three authors (MJS, MS, CE). The *reliability* was determined by assessing the internal consistency and test-retest reliability of the total scale and subscales of the BEQ-mb.

### Stage 5 evaluation

Based on the results of the pilot test, three authors (MJS, MS, CE) formulated recommendations for the final version of the BEQ-mb, which were submitted for review to the six psychomotor therapists comprising the focus group of stage 2. They were asked to provide feedback on the recommendations, after which the researchers adapted the BEQ-mb, resulting in the final pilot version.

### Data analysis

SPSS version 25 for Windows was used for the reliability analysis. First, the internal consistency of the BEQ-mb was measured using Cronbach's alpha for the whole scale, the subscales, and if any of the items were deleted. Cronbach's alpha was considered acceptable between 0.7 and 0.8, good between 0.8 and 0.9, and excellent > 0.9 (Tavakol & Dennick, 2011). In addition, item-total and inter-item Pearson's correlations were calculated ( $r$ ). If an item had an item-total correlation of less than 0.3, no indication of a strong inter-total correlation

was deemed present (Field, 2009). Items having an inter-item correlation of less than 0.2 with any of the other items were deleted, while items showing inter-item correlations higher than 0.9 were considered carefully (De Vet et al., 2011). Second, test-retest reliability of the total scale and subscales was established by intra-class correlation (ICC; two way mixed model, absolute-agreement, single measurement) (Perinetti, 2018). ICC > 0.75 was considered excellent and an ICC between 0.40 and 0.75 acceptable (Fleis, 1986).

## Results

### Stage 1 concept development

Twenty-one items of the original BEQC were identified as suitable, including 9 items measuring body awareness, 8 items measuring body satisfaction and 8 items measuring body attitude. Three items of the BEQC were deemed unsuitable because they were found to be childish or inappropriate for the target group. Subsequent review of the six self-report questionnaires for adults with average IQ (and higher) resulted in 21 additional items for a combined test total of 42 items. For the body awareness subscale, two items were borrowed from the MAIA-2, one from the SAQ, and none from the BSQ. For the body satisfaction subscale, no items were adopted from the BCS. For the body attitude subscale, 12 items were copied from the BIS and 6 from the DBIQ.

The 42 items in the pool were clustered in themes under each of the three distinguished dimensions of body experience as follows:

- Body awareness: breathing, heartbeat, warmth, cold, tiredness, hunger, illness, excitement, pain, and muscle tension
- Body satisfaction: contentment with overall physical appearance, body weight, and muscle tension
- Body attitude: touch, body aggrandisement, fitness and vitality, body care, body protection, and sexuality.

Based on these themes, and the overlap between items, the researchers reformulated the 41 items into 31 items (see stage 1 in Table 1). The items had to be scored on a 4-point Likert scale comprised of Never (1), Sometimes (2), Frequently (3), and Always (4) with pictorial representations of the response alternatives. Higher scores indicated more positive levels of body experience.

### Stage 2 focus group

Based on the feedback from the focus group, 16 items were reformulated, 1 item was eliminated and 5 new

**Table 1.** Stagewise development of the BEQ-mb: item selection and (re-)formulations.

Stage 1 concept development	Stage 2 focus group	Stage 3 verbal reports	Stage 4–5 pilot testing & evaluation
<i>Body Awareness</i>			
1: I feel it in my body when I am warm	1: If I am warm, I feel it in my body <b>[reformulated]</b>	1: I feel it in my body when I am warm <b>[reformulated]</b>	1: I feel it in my body when I am warm
2: I feel it in my body when I am cold	2: If I am cold, I feel it in my body <b>[reformulated]</b>	14: I feel it in my body when I am cold <b>[reformulated]</b>	14: I feel it in my body when I am cold
3: I feel it in my body when I am tired	3: If I am tired, I feel it in my body <b>[reformulated]</b>	2: I feel it in my body when I am tired <b>[reformulated]</b>	2: I feel it in my body when I am tired
4: I feel it in my body when I am hungry	4: If I am hungry, I feel it in my body <b>[reformulated]</b>	3: I feel it in my body when I am hungry <b>[reformulated]</b>	3: I feel it in my body when I am hungry
5: I feel it in my body when I am sick	5: If I am sick, I feel it in my body <b>[reformulated]</b>	12: I feel it in my body when I am sick <b>[reformulated]</b>	12: I feel it in my body when I am sick
6: I feel it in my body when I am scared	6: If I am scared, I feel it in my body <b>[reformulated]</b>	15: I feel it in my body when I am scared <b>[reformulated]</b>	15: I feel it in my body when I am scared
7: I feel it in my body when I am angry	7: If I am angry, I feel it in my body <b>[reformulated]</b>	13: I feel it in my body when I am angry <b>[reformulated]</b>	13: I feel it in my body when I am angry
8: I feel it in my body when I am relaxed	9: If I am relaxed, I feel it in my body <b>[reformulated]</b>	4: I feel it in my body when I am relaxed <b>[reformulated]</b>	4: I feel it in my body when I am relaxed
9: I feel it in my body when I am stressed	10: If I am stressed, I feel it in my body <b>[reformulated]</b>	24: I feel it in my body when I am stressed <b>[reformulated]</b>	23: I feel it in my body when I am stressed
10: I feel my breathing	12: I feel my breathing	26: I feel my breathing	25: I feel my breathing
11: I feel my heart beating	13: I feel my heart beating	<b>[eliminated: too abstract and multi-interpretable]</b>	
	11: If I do not want something, I feel it in my body <b>[added]</b>	25: I feel it in my body when I do not want something <b>[reformulated]</b>	24: I feel it in my body when I do not want something
	8: If I am happy, I feel it in my body <b>[added]</b>	23: I feel it in my body when I am happy <b>[reformulated]</b>	22: I feel it in my body when I am happy
<i>Body attitude</i>			
12: I like to be touched by someone I like	14: I like to be touched by someone I like	5: I like to be touched by someone I like	5: I like to hug <b>[reformulated: more in line with the language and behaviour of the target group]</b>
13: I do not like to be touched	15: I do not like to be touched	<b>[eliminated: too abstract and multi-interpretable]</b>	
14: I like to touch someone I like	16: I like to touch someone I like	30: I like to touch someone I like	8: I like to touch someone I like
15: I like to have sex	17: I like sex <b>[reformulated]</b>	8: I like sex	30: I like sex
16: I like to shower	18: I like to shower	6: I like to shower	6: I like to shower
17: I take care of my body	19: I take care of my body	16: I take care of my body	16: I take care of my body
18: I put warm clothes on when I am cold	20: If I am cold, I put warm clothes on <b>[reformulated]</b>	<b>[eliminated: measures both body awareness and body attitude]</b>	
19: I feel bad when someone is looking at me	21: I feel bad when someone is looking at me	28: I feel bad when someone is looking at me	27: I feel bad when someone is looking at me
20: I like to get a compliment about how I look	22: I like to get a compliment about how I look	29: I like to get a compliment about how I look	28: I like to get a compliment about how I look
21: I like to move	23: I like to move	7: I like to move	7: I like to move
22: I hurt myself on purpose	24: I hurt myself on purpose	27: I hurt myself on purpose	26: I hurt myself on purpose
23: I get tired quickly	25: I get tired quickly	18: I get tired quickly	17: I get tired quickly
	26: I feel fit <b>[added]</b>	19: I feel fit	18: I feel fit
	27: I hide my body with my clothes <b>[added]</b>	17: I hide my body with my clothes	<b>[eliminated: too abstract; increased internal consistency to 0.50]</b>
<i>Body satisfaction</i>			
24: I am happy with my weight	28: I am satisfied with my weight <b>[reformulated]</b>	9: I am satisfied with my weight	9: I am satisfied with my weight
25: I am happy with my height	29: I think my height is all right <b>[reformulated]</b>	21: I am satisfied with how tall I am <b>[reformulated]</b>	20: I am satisfied with how tall I am
26: I am happy with how I look	30: I am satisfied with how I look <b>[reformulated]</b>	10: I am satisfied with how I look	10: I am satisfied with how I look
27: I am strong	31: I think my muscle tension is all right <b>[reformulated]</b>	11: I am satisfied with how strong I am <b>[reformulated]</b>	11: I am satisfied with how strong I am
28: I am agile	<b>[eliminated: too difficult]</b>		
29: I like to see myself in the mirror	32: I like to see myself in the mirror	31: I like to see myself in the mirror	29: I like to see myself in the mirror
30: I wish my body looked different	33: I wish my body looked different	32: I wish my body looked different	<b>[eliminated: too abstract]</b>
31: I like my face	34: I think my face is all right <b>[reformulated]</b>	22: I am satisfied with my face <b>[reformulated]</b>	21: I am satisfied with my face
	35: I am satisfied with what my body is capable of <b>[added]</b>	20: I am satisfied with what my body is capable of	19: I am satisfied with what my body is capable of

Note: changes are marked in bold; numbers refer to the place in the BEQ-mb at that stage.

items were added (see stage 2 in Table 1). The focus group found the pictorial response alternatives easy to understand, but recommended changes in shape and colour for greater clarity. The focus group also recommended simplification of the instructions.

### Stage 3 verbal reports

As a result of the verbal reports with five adults with MID-BIF, 14 of these 35 items were reformulated and 3 items were eliminated (see stage 3 in Table 1). The response alternatives, pictorial representations, and instructions were reported as clear and easy to understand. However, the order of the items was modified since it was found to be too monotonous by the participants.

### Stage 4 pilot testing

#### Usability

On average, this version of the BEQ-mb, which consisted of 32 items, took 7 min and 43 s (range 1 min and 51 s – 45 min; SD = 6 min and 41 s) to complete.

Seventy-one (83.5%) participants rated the length of the questionnaire as good, 2 (2.4%) as too long, and 12 (14.1%) as too short. Item 8 “I like sex” was left unanswered by 10 (11.8%) participants. Less than 3% of all other items were left blank (see Table 2).

#### Comprehensibility

Of the 32 items, 17 were evaluated by one or more participants as difficult or incomprehensible: seven items measuring body awareness, four items measuring body satisfaction, and six items measuring body attitude (see Table 2). Of these 17 items, 12 were found too difficult only once or twice and five items by five or more participants. Item 5 “I like to be touched by someone I like” was reported as poly-interpretable. Item 8 “I like sex” was reported as uncomfortable and too personal, while three participants reported they could not score this item because they lacked sexual experience. Item 17 “I hide my body with my clothes” and item 32 “I wish my body looked different” proved to be too abstract. Lastly, six participants evaluated item 27 “I hurt myself on purpose” as too confrontational.

**Table 2.** Item statistics per subscale.

Item	Unanswered N (%)	Marked as difficult N (%)	Cronbach's Alpha if item deleted ( $\alpha$ )	Item-total correlations ( $r$ )
<i>Body awareness</i> ( $\alpha = 0.84$ )				
1. I feel it in my body when I am warm	0 (0)	0 (0)	0.83	0.41
2. I feel it in my body when I am tired	0 (0)	0 (0)	0.82	0.53
3. I feel it in my body when I am hungry	1 (1.2)	0 (0)	0.83	0.44
4. I feel it in my body when I am relaxed	1 (1.2)	1 (1.2)	0.83	0.37
12. I feel it in my body when I am sick	0 (0)	2 (2.4)	0.82	0.54
13. I feel it in my body when I am angry	0 (0)	1 (1.2)	0.82	0.61
14. I feel it in my body when I am cold	1 (1.2)	0 (0)	0.82	0.57
15. I feel it in my body when I am scared	0 (0)	0 (0)	0.83	0.42
23. I feel it in my body when I am happy	0 (0)	1 (1.2)	0.83	0.46
24. I feel it in my body when I am stressed	0 (0)	1 (1.2)	0.82	0.55
25. I feel it in my body when I do not want something	0 (0)	1 (1.2)	0.82	0.59
26. I feel my breathing	0 (0)	2 (2.4)	0.83	0.48
<i>Body satisfaction</i> ( $\alpha = 0.80$ )				
9. I am satisfied with my weight	1 (1.2)	0 (0)	0.79	0.48
10. I am satisfied with how I look	0 (0)	0 (0)	0.76	0.66
11. I am satisfied with how strong I am	2 (2.4)	2 (2.4)	0.80	0.39
20. I am satisfied with what my body is capable of	1 (1.2)	0 (0)	0.75	0.71
21. I am satisfied with how tall I am	0 (0)	1 (1.2)	0.80	0.35
22. I am satisfied with my face	1 (1.2)	0 (0)	0.70	0.58
31. I like to see myself in the mirror	0 (0)	1 (1.2)	0.78	0.53
32. I wish my body looked different (R)	0 (0)	5 (5.9)	0.79	0.43
<i>Body attitude</i> ( $\alpha = 0.48$ )				
5. I like to be touched by someone I like	0 (0)	6 (7)	0.46	0.18
6. I like to shower	0 (0)	0 (0)	0.46	0.17
7. I like to move	2 (2.4)	0 (0)	0.46	0.19
8. I like sex	10 (11.8)	18 (21)	0.47	0.15
16. I take care of my body	1 (1.2)	0 (0)	0.41	0.36
17. I hide my body with my clothes (R)	0 (0)	6 (7)	0.50	0.06
18. I get tired quickly (R)	0 (0)	0 (0)	0.50	0.04
19. I feel fit	0 (0)	0 (0)	0.43	0.28
27. I hurt myself on purpose (R)	0 (0)	6 (7)	0.44	0.29
28. I feel bad when someone is looking at me (R)	1 (1.2)	0 (0)	0.47	0.12
29. I like to get a compliment about how I look	0 (0)	1 (1.2)	0.43	0.27
30. I like to touch someone I like	0 (0)	2 (2.4)	0.46	0.17

R = reversed scored.



The feedback of the participants was evaluated in Stage 5 evaluation and used to adapt the BEQ-mb, resulting in the final version of the questionnaire.

### Internal consistency

The internal consistency of the concept version of the BEQ-mb used in the pilot study was good (0.84) for the total scale and for the *body awareness* (0.84) and *body satisfaction* subscales (0.80), but low for the *body attitude* subscale (0.48).

Cronbach's alpha if item deleted indicated that none of the items measuring body awareness or body satisfaction would increase the internal consistency of the *body awareness* and *body satisfaction* subscales if deleted since all values for these items were less than the overall internal consistency of 0.84 and 0.80, respectively. For two items on the subscale *body attitude*, Cronbach's alpha if item deleted was higher than the overall internal consistency of 0.48, indicating that deleting these items would increase the internal consistency of this subscale (see Table 2).

Item-total correlations ranged from 0.38 to 0.61 for items of the *body awareness* subscale and from 0.35 to 0.71 for items of the *body satisfaction* subscale, indicating good to very good discrimination in both subscales. Item-total correlations ranged from 0.04 to 0.36, for the *body attitude* subscale, indicating poor discrimination in this subscale. More specifically, no strong item-total correlation existed for 11 out of the 12 items of the *body attitude* subscale (see Table 2). None of all the 32 items had an inter-item correlation higher than 0.9 or less than 0.2 for any of the other items, thus no items had to be deleted based on the inter-item correlations.

### Test-retest reliability

ICC's on the test and retest total scores of the 32 item pilot version of the BEQ-mb were 0.87 for the total score and 0.85 for the subscale *body awareness*, 0.76 for the subscale *body satisfaction*, and 0.85 for the subscale *attitude*. Thus, test-retest reliability was excellent for the total scale and the three subscales.

### Stage 5 evaluation

Three authors (MJS, MS, CE) evaluated the results of the pilot study and recommended to reformulate one item and eliminate two items (see stage 5 in Table 1). They also recommended to keep item 27 "I hurt myself on purpose" and item 8 "I like sex" because these items enable both therapists and clients to initiate conversations about these important but fraught issues, which are often circumvented (Abbott & Howarth, 2007; Bernert & Ogletree, 2013). In addition, item 8 was

recommended to be the last item of the questionnaire since it may cause confusion or a strong emotional response, which may introduce error or bias in subsequent items (Finlay & Lyons, 2001). Lastly, although deleting item 18 "I get tired quickly" would improve the internal consistency of the body attitude subscale, the authors recommended to keep this item in view of its relevance for the target group.

Based on the feedback from five of the six members of the focus group of stage 2, all the recommendations of the authors were implemented in the final version of the BEQ-mb.

The final version of the BEQ-mb consisted of 30 items (see stage 5 in Table 1) to be scored on a 4-point Likert scale with pictorial representations of the response alternatives (see Figure 1). Higher scores indicated more positive levels of body experience.

## Discussion

In this study, we developed a body experience questionnaire for adults with MID-BIF, the BEQ-mb, and examined its usability, comprehensibility, and reliability. The final version of the BEQ-mb consists of 30 items, to be scored on a 4-point pictorial Likert scale, measuring the three dimensions of body experience – body awareness, body satisfaction, and body attitude.

The results indicated that the concept version of the BEQ-mb is usable in adults with MID-BIF and generally comprehensible. Two items with sensitive content, both measuring aspects of body attitude, were reported as incomprehensible (i.e., "I like sex" and "I hurt myself on purpose"), possibly to avoid answering them (McNeeley, 2012). These items were deliberately preserved in the final version of the BEQ-mb to facilitate discussion about their contents between therapists and clients. In the BEQ-mb manual, we will explicitly mention that therapists and researchers need to handle these sensitive items with caution, to provide a safe therapeutic environment for discussing their contents, and to respect the client's wish if he or she declines to answer them.

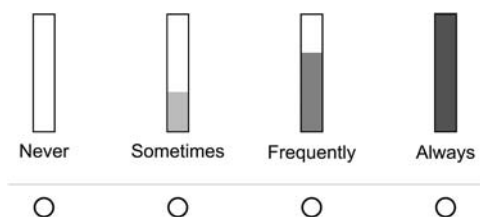


Figure 1. Pictorial representations of the response alternatives.

The results of this study showed excellent test-retest reliability for the concept version of the BEQ-mb and its subscales, and good internal consistency for the total scale and the body awareness and body satisfaction subscales. The body attitude subscale showed low internal consistency and low item-total correlations. An explanation for this might be that body attitude is a multifaceted concept (Röhricht et al., 2005), which is difficult to operationalise in an internally consistent manner. Also the fact that 4 of the 12 items of the body attitude subscale were evaluated as inappropriate may have contributed to the low internal consistency of this subscale.

We considered removing the body attitude subscale altogether, and to limit the final version of the BEQ-mb to body awareness and body satisfaction. Although this would have improved the overall reliability of the questionnaire, we decided to retain the subscale, because body attitude is potentially of great clinical relevance; removing it would imply that no information would be gathered to further explore this potential.

This study has a couple of noteworthy limitations. The first is that the criterion, structural, and convergent validity of the BEQ-mb remain to be established. For the criterion validity, this is hard to accomplish because no gold standard exists for measuring body experience. However, the structural validity of its three subscales may be established by conducting a factor analysis on a sufficiently large dataset. Also the convergent validity of the BEQ-mb may be established in future research, for instance by comparing the subjective outcomes with an observation tool, like the PsyMot, a diagnostic instrument for psychomotor therapists (Emck & Bosscher, 2010; Kay et al., 2016), which is currently under development for adults with MID-BIF.

The second limitation is that no information could be provided on the internal consistency and the test-retest reliability of the final version of the BEQ-mb, since several items were reformulated in the evaluation phase. For the same reason, it is important to re-evaluate the usability and comprehensibility of the items evaluated in the fifth stage. Future research is needed to address those limitations in a new sample of participants.

Future research on, and experience with, the BEQ-mb may also lead to the further refinement of test items. For instance, on closer examination of the final adaptations of the BEQ-mb, we consider the item “I like to hug” as inappropriate replacement for the item “I like to be touched by someone I like”, since the former is much more specific than the latter. An item related to a like or dislike of touch seems highly relevant to include in relation to psychiatric symptomatology and sexual trauma (Scheffers et al., 2017), especially in individuals in whom touch has been sexualised and brought outside

of their control through sexual abuse (Scheffers, 2018). Therefore, in the further development of the BEQ-mb, adding an item related to a (dis)like of touch needs to be reconsidered.

To our knowledge, the BEQ-mb is the first self-report questionnaire specifically developed for adults with MID-BIF, which measures body experience, and encompasses not only body satisfaction but also body awareness and body attitude. A wide range of methods was used to develop the BEQ-mb and to test its use. Adults with MID-BIF were not only engaged as participants but also consulted in verbal reports about the content and comprehensibility of items, answer categories, and instructions.

In general, the results of this study indicate that the BEQ-mb is a promising self-report questionnaire to measure body experience in adults with MID-BIF. In future research, this instrument could cast light on the specific disturbances of body experience in different psychopathological disorders, including trauma, anxiety, depression, and autism. As seen in individuals with average IQ (or higher), assessing body experience is important to initiate adequate interventions in case of problematic body experience related to psychopathology (Röhricht, 2009). Adequate interventions to improve body experience are body- and movement-oriented therapies, such as PMT (Emck et al., 2021). Whereas evaluation of these interventions, especially for adults with MID-BIF, is still limited, the BEQ-mb may also be useful in the evaluation of body- and movement related interventions aimed at improving body experience.

## Note

1. Individuals with MID (IQ 50–70) or BIF (IQ 70–85) experience similar psychosocial problems and deficits in cognitive and adaptive functioning. Therefore, they are approached as one group in Dutch clinical practice and literature (Wieland & Zitman, 2016).

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No potential conflict of interest was reported by the author(s).

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## Data availability statement

The data underlying the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy regulations.

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## References

- Abbott, D., & Howarth, J. (2007). Still off-limits? Staff views on supporting gay, lesbian and bisexual people with intellectual disabilities to develop sexual and intimate relationships? *Journal of Applied Research in Intellectual Disabilities*, 20(2), 116–126. <https://doi.org/10.1111/j.1468-3148.2006.00312.x>
- Aderka, I. M., Gutner, C. A., Lazarov, A., Hermesh, H., Hofmann, S. G., & Marom, S. (2014). Body image in social anxiety disorder, obsessive-compulsive disorder, and panic disorder. *Body Image*, 11(1), 51–56. <https://doi.org/10.1016/j.bodyim.2013.09.002>
- Allava, J. M., Martijn, C., Jansen, A., & Nederkoorn, C. (2014). Body language: Affecting body satisfaction by describing the body in functionality terms. *Psychology of Women Quarterly*, 38(2), 181–196. <https://doi.org/10.1177/0361684313507897>
- Balogun, J. A. (1986). Reliability and construct validity of the body cathexis scale. *Perceptual and Motor Skills*, 62(3), 927–935. <https://doi.org/10.2466/pms.1986.62.3.927>
- Bellemans, T., Didden, R., Visser, R., Schaafsma, D., Van Busschbach, J. T. (2018). Psychomotor therapy for anger and aggression in mild intellectual disability or borderline intellectual functioning: An intervention mapping approach. *Body, Movement and Dance in Psychotherapy*, 13(4), 1–17. <https://doi.org/10.1080/17432979.2018.1471006>
- Bernert, D. J., & Ogletree, R. J. (2013). Women with intellectual disabilities talk about their perceptions of sex. *Journal of Intellectual Disability Research*, 57(3), 240–249. <https://doi.org/10.1111/j.1365-2788.2011.01529.x>
- Cash, T. F., & Pruzinsky, T. (2002). *Body image. A handbook of theory, research and clinical practice*. The Guildford Press.
- Collins, M. E. (1991). Body figure perceptions and preferences among preadolescent children. *International Journal of Eating Disorders*, 10(2), 199–208. [https://doi.org/10.1002/1098-108X\(199103\)10:2<199::AID-EAT2260100209>3.0.CO;2-D](https://doi.org/10.1002/1098-108X(199103)10:2<199::AID-EAT2260100209>3.0.CO;2-D)
- Conrad, F., Blair, J., & Tracey, E. (2000). Verbal reports are data! A theoretical approach to cognitive interviews. In *Office of management budget: Proceedings of the 1999 federal committee on statistical research conference* (pp. 317–326).
- Council of Europe. (2020). *Common European framework of reference for languages: Learning, teaching, assessment - companion volume*. Council of Europe Publishing. [www.coe.int/lang-cefr](http://www.coe.int/lang-cefr)
- Craig, A. D. (2015). *How do you feel? An interoceptive moment with your neurobiological self*. Princeton University Press.
- De Looff, P., Noordzij, M. L., Moerbeek, M., Nijman, H., Didden, R., & Embregts, P. (2019). Changes in heart rate and skin conductance in the 30 min preceding aggressive behaviour. *Psychophysiology*, 56(10), e13420. <https://doi.org/10.1111/psyp.13420>
- De Vet, H. C. W., Terwee, C. B., Mokkink, L. B., & Knol, D. L. (2011). *Measurement in medicine*. Cambridge University Press.
- Eden, K., & Randle-Phillips, C. (2017). Exploration of body perception and body dissatisfaction in young adults with intellectual disability. *Research in Developmental Disabilities*, 71(9), 88–97. <https://doi.org/10.1016/j.ridd.2017.09.011>
- Emck, C. (2015). *Lichaamsbelevingslijst voor kinderen (LBK) [Body Experience Questionnaire for Children]*.
- Emck, C., & Bosscher, R. J. (2010). Psymot: An instrument for psychomotor diagnosis and indications for psychomotor therapy in child psychiatry. *Body, Movement and Dance in Psychotherapy*, 5(3), 244–256. <https://doi.org/10.1080/17432971003760919>
- Emck, C., Plouvier, M., & Van der Lee-Snel, M. (2012). Body experience in children with intellectual disabilities with and without externalising disorders. *Body, Movement and Dance in Psychotherapy*, 7(4), 263–275. <https://doi.org/10.1080/17432979.2012.713003>
- Emck, C., De Lange, J., Scheeuwe, T., Van Busschbach, J., & Van Damme, T. (2021). *Psychomotor interventions for mental health - Children & adolescents*. Boom Uitgevers.
- Emerson, E. (2003). Prevalence of psychiatric disorders in children and adolescents with and without intellectual disability. *Journal of Intellectual Disability Research*, 47(1), 51–58. <https://doi.org/10.1046/j.1365-2788.2003.00464.x>
- Field, A. (2009). *Discovering statistics using SPSS (and sex and drugs and rock 'n' roll)* (3rd ed. Sage (Atlanta, GA).
- Finlay, W. M. L., & Lyons, E. (2001). Methodological issues in interviewing and using self-report questionnaires with people with mental retardation. *Psychological Assessment*, 13(3), 319–335. <https://doi.org/10.1037/1040-3590.13.3.319>
- Fleiss, J. L. (1986). *The design and analysis of clinical experiments*. John Wiley & Sons.
- Fletcher, R., Barnhill, J., & Cooper, C. A. (2016). *Diagnostic manual intellectual disability - 2: A textbook of diagnosis of mental disorders in persons with intellectual disability*. NADD Press.
- Fonagy, P., & Target, M. (2007). The rooting of the mind in the body: New links between attachment theory and psychoanalytic thought. *Journal of American Psychoanalytic Association*, 55(2), 411–456. <https://doi.org/10.1177/00030651070550020501>
- Fuchs, T., & Schlimme, J. E. (2009). Embodiment and psychopathology: A phenomenological perspective. *Current Opinion in Psychiatry*, 22(6), 570–575. <https://doi.org/10.1097/YCO.0b013e3283318e5c>
- Gaete, M. I., & Fuchs, T. (2016). From body image to emotional bodily experience in eating disorders. *Journal of Phenomenological Psychology*, 47(1), 17–40. <https://doi.org/10.1163/15691624-12341303>
- Gijsbers van Wijk, C. M. T., & Kolk, A. M. (1996). Psychometric evaluation of symptom perception related measures. *Personality and Individual Differences*, 20(1), 55–70. [https://doi.org/10.1016/0191-8869\(95\)90023-N](https://doi.org/10.1016/0191-8869(95)90023-N)
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>

- Hartley, S. L., & Maclean, W. E. (2006). A review of the reliability and validity of Likert-type scales for people with intellectual disability. *Journal of Intellectual Disability Research*, 50(11), 813–827. <https://doi.org/10.1111/j.1365-2788.2006.00844.x>
- Joraschky, P., Loew, T., & Röhrich, F. (2009). *Körpererleben und Körperbild. Ein Handbuch zur Diagnostik*. Schattauer.
- Kay, J. J., Clegg, J. A., Emck, C., & Standen, P. J. (2016). The feasibility of psychomotor therapy in acute mental health services for adults with intellectual disability. *Journal of Intellectual and Developmental Disability*, 41(1), 54–60. <https://doi.org/10.3109/13668250.2015.1094037>
- Krueger, R. A., & Casey, M. A. (2009). *Focus groups: A practical guide for applied research*. Sage (Atlanta, GA).
- Lipowski, Z. J. (1977). The importance of body experience for psychiatry. *Comprehensive Psychiatry*, 18(5), 473–479. [https://doi.org/10.1016/0010-440X\(77\)90047-5](https://doi.org/10.1016/0010-440X(77)90047-5)
- McClure, K. S., Halpern, J., Wolper, P. A., & Donahue, J. J. (2009). Emotion regulation and intellectual disability. *Journal of Developmental Disabilities*, 15, 38–44.
- McNeeley, S. (2012). Sensitive issues in surveys: Reducing refusals while increasing reliability and quality of responses to sensitive survey items. In L. Gideon (Ed.), *Handbook of survey methodology for the social sciences* (pp. 377–396). Springer Science.
- Mehling, W. E., Acree, M., Stewart, A., Silas, J., & Jones, A. (2018). The multidimensional assessment of interoceptive awareness, version 2 (MAIA-2). *PLoS ONE*, 13(12), 1–12. <https://doi.org/10.1371/journal.pone.0208034>
- Napolitano, D. A., Zarcone, J., Nielsen, S., Wang, H., & Caliendo, J. M. (2010). Perceptions of body image by persons with Prader-Willi syndrome and their parents. *American Journal on Intellectual and Developmental Disabilities*, 115(1), 43–53. <https://doi.org/10.1352/1944-7558-115.1.43>
- Nayir, T., Uskun, E., Yürekli, M. V., Devran, H., Çelik, A., & Okyay, R. A. (2016). Does body image affect quality of life?: A population based study. *PLoS ONE*, 11(9), 1–13. <https://doi.org/10.1371/journal.pone.0163290>
- Orbach, I., & Mikulincer, M. (1998). The Body Investment Scale: Construction and validation of a body experience scale. *Psychological Assessment*, 10(4), 415–425. <https://doi.org/10.1037/1040-3590.10.4.415>
- Perinetti, G. (2018). Statips part IV: Selection, interpretation and reporting of the intraclass correlation coefficient. *South European Journal of Orthodontics and Dentofacial Research*, 5(1), 3–5. <https://doi.org/10.5937/sejodr4-1283>
- Pöhlmann, K., Roth, M., Brähler, E., & Joraschky, P. (2014). The Dresden Body Image Inventory (DKB-35): validity in a clinical sample. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, 64(3–4), 93–100. <https://doi.org/10.1055/s-0033-1351276>
- Price, C. J., & Hooven, C. (2018). Interoceptive awareness skills for emotion regulation: Theory and approach of mindful awareness in body-oriented therapy (MABT). *Frontiers in Psychology*, 9, 1–12. <https://doi.org/10.3389/fpsyg.2018.00798>
- Rittmannsberger, D., Yanagida, T., Weber, G., & Lueger-Schuster, B. (2020). The association between challenging behaviour and symptoms of post-traumatic stress disorder in people with intellectual disabilities: A Bayesian mediation analysis approach. *Journal of Intellectual Disability Research*, 64(7), 538–550.
- Röhrich, F. (2009). Body oriented psychotherapy. The state of the art in empirical research and evidence-based practice: A clinical perspective. *Body, Movement and Dance in Psychotherapy*, 4(2), 135–156. <https://doi.org/10.1080/17432970902857263>
- Röhrich, F., Seidler, K. P., Joraschky, P., Borkenhangen, A., Lausberg, H., Lemche, E., Loew, T., Porsch, U., Schreiber-Wilnow, K., & Tritt, K. (2005). Consensus paper on the terminological differentiation of various aspect of body experience. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, 55(3–4), 183–190. <https://doi.org/10.1055/s-2004-834551>
- Sack, M., Boroske-Leiner, K., & Lahmann, C. (2010). Association of nonsexual and sexual traumatizations with body image and psychosomatic symptoms in psychosomatic outpatients. *General Hospital Psychiatry*, 32(3), 315–320. <https://doi.org/10.1016/j.genhosppsych.2010.01.002>
- Sakson-Obada, O., Chudzikiewicz, P., Pankowski, D., & Jarema, M. (2018). Body image and body experience disturbances in schizophrenia: An attempt to introduce the concept of body self as a conceptual framework. *Current Psychology*, 37(1), 390–400. <https://doi.org/10.1007/s12144-016-9526-z>
- Schauder, K. B., Mash, L. E., Bryant, L. K., & Cascio, C. J. (2015). Interoceptive ability and body awareness in autism spectrum disorder. *Journal of Experimental Child Psychology*, 131, 193–200. <https://doi.org/10.1016/j.jecp.2014.11.002>
- Scheffers, M. (2018). *Body experience in patients with mental disorders* [Rijksuniversiteit Groningen].
- Scheffers, M., Hoek, M., Bosscher, R. J., Van Duijn, M. A. J., Schoevers, R. A., & Van Busschbach, J. T. (2017a). Negative body experience in women with early childhood trauma: Associations with trauma severity and dissociation. *European Journal of Psychotraumatology*, 8(1). <https://doi.org/10.1080/20008198.2017.1322892>
- Scheffers, M., Kalisvaart, H., Van Busschbach, J. T., Bosscher, R. J., Van Duijn, M. A. J., Van Broeckhuysen-Kloth, S. A. M., Schoevers, R. A., & Geenen, R. (2018). Body image in patients with somatoform disorder. *BMC Psychiatry*, 18(1), 1–8. <https://doi.org/10.1186/s12888-018-1928-z>
- Scheffers, M., Van Duijn, M. A. J., Beldman, M., Bosscher, R. J., Van Busschbach, J. T., & Schoevers, R. A. (2019). Body attitude, body satisfaction and body awareness in a clinical group of depressed patients: An observational study on the associations with depression severity and the influence of treatment. *Journal of Affective Disorders*, 242, 22–28. <https://doi.org/10.1016/j.jad.2018.08.074>
- Scheffers, M., Van Duijn, M. A. J., Bosscher, R. J., Wiersma, D., Schoevers, R. A., & Van Busschbach, J. T. (2017b). Psychometric properties of the Dresden Body Image Questionnaire: A multiple-group confirmatory factor analysis across sex and age in a Dutch non-clinical sample. *PLoS One*, 12(7). <https://doi.org/10.1371/journal.pone.0181908>
- Secord, P. F., & Jourard, S. M. (1953). The appraisal of body-cathexis: Body-cathexis and the self. *Journal of Consulting Psychology*, 17(5), 343–347. <https://doi.org/10.1037/h0060689>

- Stunkard, A. J., Sorenson, T., & Schulsinger, F. (1983). Use of the Danish adoption register for the study of obesity and thinness. *Research Publications - Association for Research in Nervous & Mental Disease*, 60, 115–120.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *Internal Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Vlot-Van Anrooij, K., Tobi, H., Hilgenkamp, T. I. M., Leusink, G. L., & Naaldenberg, J. (2018). Self-reported measures in health research for people with intellectual disabilities: An inclusive pilot study on suitability and reliability. *BMC Medical Research Methodology*, 18(1), 1–9. <https://doi.org/10.1186/s12874-018-0539-1>
- Whitaker, S., & Read, S. (2006). The prevalence of psychiatric disorders among people with intellectual disabilities: An analysis of the literature. *Journal of Applied Research in Intellectual Disabilities*, 19(4), 330–345. <https://doi.org/10.1111/j.1468-3148.2006.00293.x>
- Wieland, J., & Zitman, F. G. (2016). It is time to bring borderline intellectual functioning back into the main fold of classification systems. *Transactions of the Korean Institute of Electrical Engineers*, 40(4), 204–206.